WO 2004/090428 PCT/IB2004/050139

5

15

30

- 11 -

CLAIMS

- 1. A hydraulic joint articulated device (1) having a pair of articulated connectors (2), each comprising:
- * a first hinge member (5) and a second hinge member (6) apt to be assembled and comprising a respective hydraulic channel (7, 8), in which there is obtained a pin seat (9, 10), and a respective connector seat (11, 12) with a duct;
- * a tubular pin (14) having a respective pin hydraulic channel (21) forming, with the hydraulic channels (7, 8) of said first and second hinge members (5, 6), a hydraulic joint extending between the respective connector seats (11, 12); and
- * a valve seat (22) at one end of said tubular pin (14) and a respective shutter member (23) located in an opening (24) obtained in one (5) of said hinge members (5, 6) so that the relative position between shutter member (23) and valve seat (22) may be adjusted by directly acting on said shutter member (23),
 - characterized in that it comprises, at each articulated connector (2), a tubular duct (29) extending from the respective connector seat (11) to a mouthpiece section (30) apt to receive the abovementioned waterworks piping (4), extending inside a masonry.
 - 2. The device (1) according to claim 1, that at each articulated connector (2) and at the respective tubular duct (29) comprises wall anchoring means.
- 3. The device (1) according to claim 2, wherein said anchoring means comprises an elongate box member (31), apt to be buried in the masonry, having: a longitudinal opening (32) that may be crossed by said tubular duct (29) without positional restrictions, at the sides of the opening (32) the elongate box member (31) comprising plane edges (33); at the inside a recess (35) allowing to house piping (4); plate coupling means between each tubular duct (29) the longitudinal opening of the box member (31).
 - 4. The device (1) according to claim 3, wherein the elongate box member (31) comprises clamps (34) formed onto the sidewalls.
 - 5. The device (1) according to claim 3, wherein said plate coupling means comprises a pair of plates (36, 37) fitted onto the tubular duct (29), the first plate (36) being apt to be inserted inside the elongate box member (31) whereas the second plate (37) is pressed from the outside against said plane edges (33) by a tightening member (39).
- 6. The device (1) according to claim 5, wherein the plate coupling means comprises a cover plate (40) fitted onto the tubular duct (29) at each tightening member (39).
 - 7. The device (1) according to any one of the preceding claims, wherein said

15

20

25

30

35

first hinge member (5) and second hinge member (6) both have the shape, defined by a respective rigid casing, of a sphere sector.

- 8. The device (1) according to claim 7, wherein said sphere sector has a 90° width so as to allow a 180° relative rotation.
- 5 9. The device (1) according to any one of the preceding claims, wherein said pin seats (9, 10) are arranged head-to-head and are partitioned by an antifriction washer (13).
 - 10. The device (1) according to any one of the preceding claims, wherein the tubular pin (14) has O-ring gaskets (15) inserted in suitable annular grooves (20).
- 11. The device (1) according to any one of the preceding claims, wherein the tubular pin (14) has a side recess (16) apt to be engaged by a fastening pin (17), inserted in a hinge member (5) in a suitable seat (19), adjustable through the respective connector seat (11).
 - 12. The device (1) according to any one of the preceding claims, wherein the pin hydraulic channel (21) is coaxial to the tubular pin (14).
 - 13. The device (1) according to any one of the preceding claims, wherein said valve seat (22) is made of a countersink formed onto the head of the tubular pin (14) and onto the internal cylindrical surface of the latter.
 - 14. The device (1) according to any one of the preceding claims, wherein said opening (24) is obtained in a stationary hinge member (5).
 - 15. The device (1) according to any one of the preceding claims, wherein the shutter member (23) extends between the inside of the respective hinge member (5) and the outside and wherein said opening (24) is a threaded hole that, together with the shutter member (23), is coaxial to the tubular pin (14), i.e. to the axis of rotation of the articulated connector (2), thereby giving to the shutter member (23) the option of translating axially, there being ensured the perfect correspondence between it and the valve seat (22).
 - 16. The device (1) according to any one of the preceding claims, comprising additional supporting means, comprising additional supporting means, in order to at least partially discharge the weight of the radiator (3).
 - 17. The device (1) according to claim 16, wherein said additional supporting means comprises at least one supporting member (45).
 - 18. The device (1) according to claim 17, wherein said at least one supporting member comprises a projecting pin (46) embedded in the wall, e.g. by virtue of conventional fastening means like a screw anchor (47).
 - 19. The device (1) according to claim 18, wherein the head (48) of the projecting pin (46) is made of a shock-resistant material, e.g. rubber and the like and has a

WO 2004/090428 PCT/IB2004/050139

- 13 -

rounded end that, by exploiting the elasticity of the projecting pin (46), allows the head (48) to be inserted below a structural member (49) of the radiator (3) itself.

- 20. A use of the hydraulic joint articulated device (1) of any one of the preceding claims, in combination with a heat radiator.
- A heat radiator comprising at least one articulated connector (2) or a hydraulic joint articulated device (1) of any one claim 1 to 19.